AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims

Claims 1-15 (Cancelled)

16. (Previously Presented) An isolated proton-gated cation channel comprising a subunit which comprises the amino acid sequence of SEQ ID NO: 2.

17. (Previously Presented) A channel according to claim 16, which is a homopolymeric channel.

18. (Previously Presented) A channel according to claim 16 which is a heteropolymeric channel.

19. (Previously Presented) A channel according to claim 18 comprising at least one subunit which belongs to the degenerin/ENaC channel superfamily.

20. (Previously Presented) A channel according to claim 18, comprising at least one subunit which belongs to the P2X ATP-gated channel family.

21. (Previously Presented) A channel according to claim 20, wherein the P2X family sub-unit is P2X2.

Claims 22-37 (Cancelled)

38. (Currently Amended) An isolated human proton-gated cation channel comprising a subunit that comprises an amino acid sequence that is at least 85% identical to the amino acid sequence of SEQ ID NO: 2, wherein the proton-gated cation channel displays a biphasic current when activated by an extracellular proton concentration which is below physiological pH, and wherein the slow component of the biphasic current is ~~amiloride-sensitive~~ inhibited by amiloride.

39. (Cancelled)

40. (Currently Amended) A channel according to claim 38 ~~or 39~~, wherein the amino acid sequence of the subunit differs from the amino acid sequence of SEQ ID NO: 2 by a substitution of one or several amino acid residues, and wherein the channel retains the functional properties of a channel comprising a subunit consisting of the amino acid sequence set forth in SEQ ID NO: 2.

41. (New) An isolated subunit of a human proton-gated cation channel, wherein the subunit comprises the amino acid sequence of SEQ ID NO: 2.

42. (New) An isolated subunit of a human proton-gated cation channel, wherein the subunit comprises an amino acid sequence that is 531 amino acids in length and is greater than 85% identical to the amino acid sequence of SEQ ID NO: 2.